

2014

Keynote Speaker and Meeting Program

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KEYNOTE ADDRESS

Beyond Hubble: A New Era in Astronomy with NASA's James Webb Space Telescope



For over 20 years, the Hubble Space Telescope has been revealing the unknown cosmos; this single scientific instrument has completely revolutionized our understanding of the Universe. In 2009, the complete refurbishment of Hubble gave new life to the telescope and has produced groundbreaking science results, revealing some of the most distant galaxies ever discovered. Despite the remarkable advances in astronomy that Hubble has provided, the new questions that have arisen demand a new space telescope with new technologies and capabilities. I will present the exciting new technology development and science goals of Hubble's 100x-more-powerful successor, NASA's James Webb Space Telescope, which is currently being built and tested and will be launched later this decade.

Dr. Amber Straughn is an Astrophysicist at NASA's Goddard Space Flight Center in Greenbelt, MD and serves as the Deputy Project Scientist for James Webb Space Telescope Communications & Outreach.

Amber grew up in the small farming town of Bee Branch, Arkansas where her fascination with astronomy began under beautifully dark, rural skies. She obtained her B.S. in Physics at the University of Arkansas in

Fayetteville in 2002, and completed her M.S. and Ph.D. in Physics at Arizona State University in 2008. She has been involved in NASA Education and Research programs since her undergrad years, beginning with flying an experiment on NASA's microgravity KC-135 plane (the "vomit comet") in 2001. During graduate school at Arizona State, Amber received the NASA Space Grant Fellowship for summer studies, and in 2005 was awarded the 3-year NASA Harriett Jenkins Pre-doctoral Fellowship.

Amber's research focuses on interacting and star-forming galaxies in the context of galaxy assembly, and she has most recently been working on infrared spectroscopic data from the new Wide Field Camera 3 (WFC3) on Hubble Space Telescope. Her broad research interests include galaxy formation and evolution, galaxy mergers and interactions, physical processes induced by galaxy interactions including star formation and black hole growth, emission-line galaxies, and dark energy and its effect on the galaxy merger rate.

In addition to research, Amber's role with the James Webb Space Telescope project involves working with Communications and Outreach activities. She has participated in extensive public speaking events locally, nationally, and internationally. Amber has also done several live television interviews, media features for NASA (see <http://www.nasa.gov/topics/technology/features/webb-faqs.html>), and appeared in the Late Night with Jimmy Fallon's "Hubble Gotchu" segment that aired in August 2010, and has interviewed for documentaries. She very much enjoys interacting with the public.

Amber lives in Glenn Dale, MD, with her husband Matt and her two Great Danes and one cat. Outside of her NASA work, she is a yoga teacher and is currently training for her private pilot's license.

Meeting Report

SECTION PROGRAMS ORAL PRESENTATIONS

(Presenter is underlined)

ORAL SESSIONS 1: FRIDAY 1:00-2:30

PHYSICS AND ENGINEERING

207

CHAIR: Mostafa Hemmati

1:00

DETECTION & RANGING SYSTEMS FOR PROXIMITY FLIGHT OF COOPERATING 6U CUBESATS

Mustafa Bayraktar¹, Yupo Chan¹, Po-Hao Adam Huang², Edmond W. Wilson, Jr.³

¹University of Arkansas for Medical Sciences, ²Univ. of Arkansas, Fayetteville, ³Harding University

1:15

DESIGN OF CCD ARRAY DETECTOR FOR A CZERNY-TURNER SPECTROGRAPH

Brennan Thomason, Tamara Reed, and Edmond Wilson.

Harding University

1:30

SOFTWARE DEVELOPMENT FOR A DIODE LASER SPECTROMETER

Amlam Niragire, Chih Hao Wu, and Edmond Wilson. Harding University

1:45

OPTICAL ABSORPTION PROPERTIES OF GLANCING ANGLE DEPOSITED NANOSTRUCTURE ARRAYS IN DIFFERENT GEOMETRIES

Hilal Cansizoglu¹, Mehmet Cansizoglu¹, Miria M. Finckenor², and Tansel Karabacek¹.

¹University of Arkansas at Little Rock, ²NASA Marshall Space Flight Center

2:00

TORNADO-TERRAIN INTERACTION EFFECTS ON TORNADO DAMAGE USING GOOGLE EARTH

Nawfal Ahmed, R. Panneer Selvam, University of Arkansas

2:15

WHAT'S REALLY INVOLVED IN BUILDING A 3D PRINTER?

Justin Nesselrotte, and Edmond Wilson. Harding University

CHEMISTRY & BIOCHEMISTRY

208

CHAIR: David Cole

1:00

BOND LENGTH / BOND VALENCE RELATIONSHIPS FOR IRON-IRON, IRON-SULFUR, AND SULFUR-SULFUR BONDS

Welyu (Daniel) Lu, and Franklin D. Hardcastle. Arkansas Tech University

1:15

SYNTHESIS AND CHARACTERIZATION OF TRANSITION METAL COMPLEXES WITH HEXADENTATE HEMI-CAGE LIGAND

Megan Fuller, and Anwar Bhuiyan. Arkansas Tech University

1:45

ATOMIC ORBITAL EXPONENTS FROM VALENCE-LENGTH RELATIONSHIPS

Franklin D. Hardcastle. Arkansas Tech University

2:00

HYPOCHLOROUS ACID AS A METHOD OF SWIMMING POOL SANITATION

Kelton Schleyer, and Dennis Province. Harding University

2:15

CATALYSTS TESTING WITH CARBON PASTE ELECTRODES

Steve Gann. Arkansas Tech University

CELL & MOLECULAR BIOLOGY

209

CHAIR: Joshua Sakon

1:00

EVALUATING THE ROLE OF MEIOTIC GENES IN DNA REPAIR USING RNAi

Younna E. Moufarrej, Sydney L. Haldeman, Emily R. Cariker, and Andrew M. Schurko. Hendrix College

1:15

COLLAGEN TARGETING MECHANISM OF BACTERIAL COLLAGENASE

Joshua Sakon. University of Arkansas

1:30

ACETAMINOPHEN INCREASES STYRENE BIOACTIVATION TO A TOXIC METABOLITE BY CYP2E1

Jessica H. Hartman, and Grover P. Miller.

University of Arkansas for Medical Sciences

1:45

WARFARIN METABOLITE PROFILES REVEAL THE IMPORTANCE OF FACTORS ON PATIENT DOSE-RESPONSES TO ANTICOAGULANT THERAPY

Dakota Pouncey. Hendrix College

2:00

DISCOVERY AND GENOMIC ANALYSIS OF TWO NOVEL MYCOBACTERIOPHAGES

Alyssa Stubblefield, Nathan Reyna, and Ruth Plymale.

Ouachita Baptist University

2:15

USING MACHINE LEARNING ALGORITHMS TO PREDICT DRUG METABOLISM BY CYP2C ENZYMES

Eugene Nyamugenda¹, Jessica H. Hartman², Grover P. Miller².

¹Hendrix College, ²University of Arkansas for Medical Sciences

VERTEBRATE BIOLOGY

210

CHAIR: Steve Cooper

1:00

URBAN STREAM SYNDROME IN A SMALL TOWN: A COMPARATIVE STUDY OF SAGER AND FLINT CREEKS

T.S. Wakefield. John Brown University

1:15

ONSET OF SCALE FORMATION IN ALLIGATOR GAR

Anthony V. Fernando, and Steve E. Lochmann. Department of Aquaculture and Fisheries, University of Arkansas at Pine Bluff

1:30

DETERMINING INDIVIDUALISTIC VOCAL CHARACTERISTICS OF *PANTHERA TIGRIS* AND IMPLICATIONS FOR ACOUSTIC MONITORING OF IN-SITU POPULATIONS

Courtney Elizabeth Dunn, and Mary Victoria McDonald.

University of Central Arkansas

Arkansas Academy of Science

1:45

SIZE AND AGE RECORDS FOR AN ARKANSAS SPECIMEN OF THE AMERICAN BULLFROG, *LITHOBATES CATESBEIANUS* (ANURA: RANIDAE), FROM NORTHEASTERN ARKANSAS
Stanley E. Trauth, and Timothy A. Welch. Arkansas State University

2:00

DISTRIBUTION OF THE NORTHERN LONG-EARED BAT (*MYOTIS SEPTENTRIONALIS*) IN ARKANSAS

D.B. Sasse¹, M.J. Harvey², J.J. Jackson³, P.R. Moore⁴, R.W. Perry⁵, T.S. Risch⁴, D.A. Saugey⁶, and J.D. Wilhide³.

¹Arkansas Game and Fish Commission, ²Tennessee Technological University, ³Jackson Environmental, ⁴Arkansas State University, ⁵U.S. Forest Service, ⁶Nightwing Consulting

2:15

VARIATION IN THERMALLY INDUCED CROSS-PROTECTION IN CHANNEL CATFISH EXPOSED TO AN AMMONIA CHALLENGE
Sindhu Kaimal, and Alf H. Haukenes. University of Arkansas-Pine Bluff

INVERTEBRATE BIOLOGY

Liberty Room

CHAIR: Ryan Stork

1:00

NEW HOST AND DISTRIBUTION RECORDS OF THE LEECH *PLACOBDELLA MULTILINEATA* MOORE, 1953 (HIRUDINIDA: GLOSSIPHONIIDAE)

William E. Moser¹, Dennis J. Richardson², Chris T. McAllister³, J. T. Briggler⁴, Charlotte I. Hammond², and Stanley E. Trauth⁵.

¹Smithsonian Institution, National Museum of Natural History, ²Quinnipiac University, ³Eastern Oklahoma State College, ⁴Missouri Department of Conservation, ⁵Arkansas State University

1:15

NEW HOST AND LOCALITY RECORDS FOR THE FISH LEECHES *MYZOBDELLA LUGUBRIS* AND *MYZOBDELLA REDUCTA* (HIRUDINIDA: PISCICOLIDAE) FROM ARKANSAS AND OKLAHOMA

Dennis J. Richardson¹, William E. Moser², Chris T. McAllister³, Renn Tumblison⁴, Charlotte I. Hammond¹, Henry W. Robison⁵, David A. Neely⁶.
¹Quinnipiac University, ²Smithsonian Institution, National Museum of Natural History, ³Eastern Oklahoma State College, ⁴Henderson State University, ⁵Southern Arkansas University, ⁶Tennessee Aquarium Conservation Institute

1:30

A REVIEW OF SYMBIOTIC RELATIONSHIPS IN STENOPODIDEAN SHRIMPS

Joseph W. Goy. Harding University

1:45

MISCELLANEOUS FISH HELMINTH PARASITE (TREMATODA, CESTOIDEA, NEMATODA, ACANTHOCEPHALA) RECORDS FROM ARKANSAS.

C.T. McAllister^{1*}, C.R. Bursey², H.W. Robison³, D.A. Neely⁴, M.B. Connior², and M.A. Barger⁶. ¹Science and Mathematics Division, Eastern Oklahoma State College, Idabel, OK 74745; ²Department of Biology, Pennsylvania State University, Shenango Campus, Sharon, PA 16146; ³9717 Wild Mountain Drive, Sherwood, AR 72120; ⁴Tennessee Aquarium Conservation Institute, Chattanooga, TN 37402; ⁵Health and Natural Sciences, South Arkansas Community College, El Dorado, AR 71730; and ⁶Department of Natural Sciences, Peru State College, Peru, NE 68421.

2:00

DISTRIBUTION, HABITAT, AND STATUS OF THE DITCH FENCING CRAYFISH, *FAXONELLA CLYPEATA* (HAY) (DECAPODA: CAMBARIDAE) IN ARKANSAS.

H.W. Robison¹ and C.T. McAllister². ¹9717 Wild Mountain Drive, Sherwood, AR 72120; and ²Science and Mathematics Division, Eastern Oklahoma State College, Idabel, OK 74745.

2:15

PREVALENCE OF *CYTAUXZOOM FELIS* IN FERAL CATS IN RUSSELLVILLE ARKANSAS

Cynthia H. Jacobs, Rachael E. Urbanek, and Catherine Normand. Arkansas Tech University

ORAL SESSIONS II: FRIDAY 3:00-5:00

PHYSICS AND ENGINEERING

207

CHAIR: Charles Wu

3:00

DYNAMIC EFFECT OF TORNADO FORCES ON CYLINDRICAL STRUCTURES

Majdi Yousef, R. Panneer Selvam, and Piotr Gorecki. University of Arkansas, Fayetteville

3:15

SPEED AND CURRENT RELATION IN ANTI-FORCE BREAKDOWN WAVES

Ryan Evans, and Mostafa Hemmati. Arkansas Tech University

3:30

WAVE PROFILE FOR LOW SPEED CURRENT BEARING WAVES

Preston Galla, and Mostafa Hemmati. Arkansas Tech University

3:45

PHOTOVOLTAIC MATERIALS RESEARCH AT ARKANSAS STATE UNIVERSITY-AN UPDATE

Joshua Vangilder, Dr. Robert Engelken, M. Jason Newell, Maqsood Ali Mughal, Kayla Wood, and Shyam Thapa. Arkansas State University

4:00

GROWTH OF ZnO NANOROD AND NANOFLOWER STRUCTURES BY A FACILE TREATMENT OF Zn FILMS IN HOT DE-IONIZED WATER

Khedir R. Khedir, Zubayda S. Saifaldeen, Taha Demirkan, Rosure B. Abdulrahman, and Tansel Karabacak. Department of Applied Science, University of Arkansas at Little Rock

4:15

SPUTTER DEPOSITED TUNGSTEN CARBIDE (WC) NANORODS FOR CATALYTIC APPLICATIONS AND THIN FILMS WITH COMPLIANT LAYERS FOR WEAR RESISTANT APPLICATIONS

Mehmet F. Cansizoglu, and Tansel Karabacak. Department of Applied Science, University of Arkansas at Little Rock

4:30

EFFICIENCY MEASUREMENT OF WHITE LED DEVICE

Ahmed Zurfi, Dallas Tompkins, and Jing Zhang. Department of Systems Engineering, University of Arkansas at Little Rock

4:45

A COMPARISON OF THE DIFFERENT INDEPENDENT TECHNIQUES FOR MEASURING SUPERMASSIVE BLACK HOLE MASSES

Ismaeel Al-Baidhany¹, Marc Seigar¹, Patrick Treuthardt¹, Amber Sierra¹, Ben Davis², Daniel Kennifick², Julia Kennefick², and Claud Lacy².
¹University of Arkansas at Little Rock. ²University of Arkansas at Fayetteville

CHEMISTRY & BIOCHEMISTRY

208

CHAIR: Kevin Stewart

3:00

AN OPTICAL NANOSAT DETECTION AND RANGING SYSTEM (SADARS)

Maurisa Orona, Andrew Couch, and Edmond Wilson. Harding University

Meeting Report

3:15
APPARATUS FOR CONCENTRATING PLANT AND HUMAN VOLATILES

Maegen Sloan, Brittany Gibson, Ozioma Whittaker, and Edmond Wilson. Harding University

3:30
DESIGNS FOR A RAMAN SPECTROMETER

Maria Medrano, Trevor Drury, and Edmond Wilson. Harding University

3:45
DESIGNING A SAMPLE HOLDER AND OPTICS FOR USE IN RAMAN SPECTROSCOPY

Trevor Drury, Maria Medrano, and Edmond Wilson. Harding University

4:00
OPTIMIZATION OF FUEL GRAIN GEOMETRIES FOR HYBRID ROCKETS USING AN ADDITIVE MANUFACTURING PROCESS

Rachel Beeman, and Edmond Wilson. Harding University

4:15
EXAMINING THE CLAIMS OF NATURAL PRODUCTS: AN EVALUATION OF THE ANTIMICROBIAL AND ANTIOXIDANT PROPERTIES OF AUSTRALIAN TEA TREE OIL

Chelsea Essary, and Dennis Province. Harding University

4:30
SPECTROSCOPY OF COMBUSTION OF HYDROCARBONS FROM 200 NM TO 1650 NM

Maddison Greene, and Edmond Wilson. Harding University

4:45
THE CRYSTAL STRUCTURE EFFECT OF THE SYNTHESIS OF COBALT OXIDE NANOPARTICLES USING MULTIPLE ITERATIONS OF A RECYCLABLE PRECIPITATION REACTION

J.S. Pennington, and R. J. Tackett. Arkansas Tech University

CELL & MOLECULAR BIOLOGY 209 CHAIR: Grover Miller

3:00
PROTECTIVE EFFECTS OF AQUEOUS EXTRACT OF TERMINALIA ARJUNA BARK AGAINST DOXORUBICIN-INDUCED CARDIOTOXICITY

Sarah Bishop¹, and Shi Liu².

¹Ouachita Baptist University, Dept. of Pharmaceutical Sciences, College of Pharmacy, ²University of Arkansas for Medical Sciences

3:15
ASSESSMENT OF TOTAL PHENOLICS AND ANTI-OXIDATION CAPACITIES IN WHEAT SEEDS

Michelle Poe¹, Andra Bates¹, Luther Talbert², Jamie Sherman², and Joseph Onyilagha¹.

¹University of Arkansas at Pine Bluff, ²Montana State University

3:30
INTRAVESICAL CHITOSAN/IL-12 IMMUNOTHERAPY INDUCES TUMOR-SPECIFIC SYSTEMIC IMMUNITY AGAINST BLADDER CANCER

Sean Smith, and David Zaharoff. University of Arkansas

3:45
FRESHMAN FIND PHAGE!

Jessica Ashcraft, Ruth Plymale, and Nathan Reyna. Ouachita Baptist University

4:00
AGING IS A DETERMINANT IN ANOXIA STRESS TOLERANCE IN CAENORHABDITIS ELEGANS

J. M. Goy, Harding University

4:30
INBRE Opportunities

VERTEBRATE BIOLOGY 210 CHAIR: Cynthia Jacobs

3:00
A TEST OF ALTERNATIVE MODELS FOR INCREASED TISSUE NITROGEN ISOTOPE RATIOS DURING FASTING IN HIBERNATING ARCTIC GROUND SQUIRRELS

Trixie Lee¹, C. Loren Buck², and Brian M. Barnes²

¹Harding University, ²University of Alaska Anchorage

3:15
USING eDNA FROM SOIL SAMPLES TO DETECT TERRESTRIAL SPECIES

Subir B. Shakya, Pablo A. Bacon, and Abraham E. Tucker. Southern Arkansas University

3:30
ECOLOGY OF THE SQUIRREL TREEFROG (HYLA SQUIRELLA) IN SOUTHERN ARKANSAS

M. B. Connior^{1*}, T. Fulmer², C. T. McAllister³, and C. R. Bursey⁴

¹Health and Natural Sciences, South Arkansas Community College, El Dorado, AR 71730, ²1033 Magnolia Drive, El Dorado, AR 71730, ³Science and Mathematics Division, Eastern Oklahoma State College, Idabel, OK 74745, ⁴Department of Biology, Pennsylvania State University-Shenango Campus, Sharon, PA 16146

3:45
PLEISTOCENE SEED DISPERSAL OF ANACHRONISTIC FRUITS: USING ELEPHANTS TO TEST ANCIENT PLANT-ANIMAL INTERACTIONS

Charlie N. Davis, Madison J. Boone, and Laura Klasek. Hendrix College

4:00
LAND USE CHANGES IN THE FAYETTEVILLE SHALE GAS DEVELOPMENT REGION

Alex B. Cox, Rachel L. Wells, and Chloe Benichou. Hendrix College.

4:15
GROWTH AND REPRODUCTION IN THE OUACHITA MADTOM (NOTURUS LACHNERI) AT THE PERIPHERY OF ITS DISTRIBUTION

Renn Tumlinson, and James O. Hardage III. Henderson State University

INVERTEBRATE BIOLOGY Liberty Room CHAIR: Joseph Goy

3:00
PLAGIOPORUS (DIGENEA: OPECOELIDAE) OF ARKANSAS AND MISSOURI

Thomas J. Fayton¹, Chris T. McAllister², and Matthew B. Connier³.

¹Department of Coastal Sciences, Gulf Coast Research Laboratory, University of Southern Mississippi, ²Division of Science and Mathematics, Eastern Oklahoma State College, ³Health and Natural Sciences, South Arkansas Community College

3:15
PROPORTIONALITY OF POPULATION PARAMETERS OF CLINOSTOMUM METACERCARIE IN THE OROBRANCHIAL CAVITY OF MICROPTERUS DOLOMEIU AND M. PUNCTULATUS

James J. Daly, Sr. University of Arkansas for Medical Sciences (retired)

3:30
A COMPARATIVE STUDY OF HELMINTH PARASITES OF THE MANY-RIBBED SALAMANDER, EURYCEA MULTIPPLICATA AND OKLAHOMA SALAMANDER, EURYCEA TYNERENSIS (CAUDATA: PLETHODONTIDAE), FROM ARKANSAS AND OKLAHOMA

Arkansas Academy of Science

C.T. McAllister^{1*}, M.B. Connior², C.R. Bursey³, and H.W. Robison⁴.¹Division of Science and Mathematics, Eastern Oklahoma State College, Idabel, OK 74745, ²Health and Natural Sciences, South Arkansas Community College, El Dorado, AR 71730, ³Department of Biology, Pennsylvania State University, Shenango Campus, Sharon, PA 16146⁴9717 Wild Mountain Drive, Sherwood, AR 72120

3:45

NOTES ON TARANTULA (*APHONOPELMA HENTZI*) REPRODUCTION IN ARKANSASAustin Jones¹, David H. Jamieson², and Terry L. Jamieson².¹NorthWest Arkansas Community College, ²Crowder College – Cassville Campus

4:00

FIRST RECORD OF THE AMERICAN BURYING BEETLE, *NICROPHORUS AMERICANUS*, IN CLARK COUNTY, ARKANSASJess Kelly, Ouachita Baptist University

4:15

POPULATION GENOMICS OF THE MICROCRUSTACEAN *DAPHNIA PULEX*Abraham Tucker, Ph.D.¹, L. Clai Morehead¹, and Matthew Ackerman².¹Southern Arkansas University, ²Indiana University**ORAL SESSIONS II: SATURDAY 8:30-10:00****PHYSICS AND ENGINEERING**

207

CHAIR: Matt Strasser

8:30

THE DEVELOPMENT OF CRITICAL TECHNOLOGIES FOR NANO-SATELLITE PROXIMITY OPERATIONS AT ARKANSASAdam Huang¹, Edmond Wilson², and Yupo Chan³.¹University of Arkansas, Fayetteville, ²Harding University, ³University of Arkansas, Little Rock

8:45

BRINGING THE LEAST ACTION PRINCIPLE INTO INTRODUCTORY PHYSICS LABSJuan D. Serna, and Jared Gavin. University of Arkansas at Monticello

9:00

SOFTWARE & HARDWARE DESIGN FOR A HIGH RESOLUTION FIBER-FED VISIBLE/NEAR INFRARED SPECTROGRAPHAnna Shafer, Joshua Griffith, Brennan Thomason, and Edmond Wilson. Harding University

9:15

MARS ROVER 3-D CAMERAAaron Burns, and Edmond Wilson. Harding University

9:30

REMOTE CONTROL OF MOBILE ROBOTIC VEHICLE VIA WEB-INTERFACEDouglas Bailey, Justin Nesselrotte, and Edmond Wilson. Harding University**PHYSICS AND ENGINEERING**

209

CHAIR: Charles Wu

8:30

SPECTROSCOPY OF EARTH'S ATMOSPHERE AND SOLAR RADIATION IN THE SPECTRAL RANGE OF 400 nm TO 1000 nmStephanie Inabnet, and Edmond Wilson. Harding University

8:45

SHALE GAS DEVELOPMENT AND ITS ASSOCIATED IMPACTS ON ENERGY PATTERN IN THE UNITED STATESQiaozi Zhao, and Charles Wu, Harding University

9:00

OPTIMAL EXPERIMENTAL DESIGN IN INVERSION WITH APPLICATION TO SUBSURFACE SENSINGYijun Yu¹, and Nailong Guo². ¹Philander Smith College, ²Benedict College

9:15

DESIGNING A HIGH RESOLUTION FIBER-FED SPECTROGRAPH FOR SOLAR OBSERVATIONS

Edmond Wilson, Brennan Thomason, Stephanie Inabnet, and Tamara Reed. Harding University

9:30

HIGH PRESSURE XENON TPC RADIATION BACKGROUND FOR NEXT EXPERIMENTAbdel Bachri¹, Perry Grant², Clayton Martin¹, and Martin Hawron³. ¹Southern Arkansas University, ²University of Arkansas, ³University of Connecticut**PLANT SCIENCE**

Liberty room

CHAIR: Ann Willyard

8:30

REDISCOVERY OF *PERSEA BORBONIA* VAR. *BORBONIA* (LAURACEAE), *PROSOPIS GLANDULOSA* VAR. *GLANDULOSA* (FABACEAE), AND *PINUS PALUSTRIS* (PINACEAE) IN ARKANSAS, WITH THREE NEW ANGIOSPERM SPECIES FOR ARKANSASTiffany Roeser¹, James H. Peck², and Brett E. Serviss¹.¹Henderson State University, ²University of Arkansas at Little Rock

8:45

THE STATUS OF *CARDAMINE DISSECTA* (BRASSICACEAE) IN ARKANSASKaren P. Fawley¹, C. Theo Witsell², and Marvin W. Fawley¹.¹University of Arkansas at Monticello, ²Arkansas Natural Heritage Commission

9:00

THE PRESENCE OF ASIATIC SPECIES OF SEAWEED ON THE TEXAS COASTRandi Lovell, Megan Reed, and Troy L. Bray. Henderson State University

9:15

SERENDIPITOUS DATA FOLLOWING A SEVERE WINDSTORM IN AN OLD-GROWTH PINE STANDDon C. Bragg¹, and Jess Riddle².¹USDA Forest Service, ²University of Arkansas

9:30

ALGAE AND SNAILS INTERACT TO AFFECT LEAF DECOMPOSITION RATESAli Mcleod, Steven Polaskey, and Sally Entekin. University of Central Arkansas**POSTER PRESENTATION**

(Presenter is underlined)

LIFE SCIENCES POSTERS**LS 38 EASTERN BLUEBIRD DIET, BEHAVIOR, AND WATER CONTENT OF PREY ITEMS**Brandi Cansler, and Virginie Rolland.

Arkansas State University Department of Biological Sciences

Meeting Report

LS 39 THE INTRODUCED DIRT-COLORED SEED BUG, *MEGALONOTUS SABULICOLA* (HEMIPTERA: RHYPAROCHROMIDAE) AND WATER BOATMEN, *SIGARA MATHESONI* (HEMIPTERA: CORIXIDAE): NEW FOR ARKANSAS.S.W. Chordas III¹, C.T. McAllister², and H.W. Robison³.¹Center for Life Sciences Education, The Ohio State University, 260 Jennings Hall, 1735 Neil Avenue, Columbus, OH 43210; ²Science and Mathematics Division, Eastern Oklahoma State College, Idabel, OK 74745; and ³9717 Wild Mountain Drive, Sherwood, AR 72120.**LS 40 DETERMINING THE EFFECT OF ACTIN DEPOLYMERIZATION OF *DICTYOSTELIUM DISCOIDEUM* MITOCHONDRIA**

Jordyn Cleavenger, Greg Berbusse, and Kari Naylor.

University of Central Arkansas

LS 41 NEW RECORDS OF ECTOPARASITES AND OTHER EPIFAUNISTIC ARTHROPODS FROM SCALOPUS AQUATICUS AND BLARINA CAROLINENSIS IN ARKANSASM.B. Connior¹*, L.A. Durden², and C.T. McAllister³.¹Health and Natural Sciences, South Arkansas Community College, El Dorado, AR 71730, ²Department of Biology, Georgia Southern University, Statesboro, GA 30458, ³Science and Mathematics Division, Eastern Oklahoma State College, Idabel, OK 74745**LS 42 NATURAL HISTORY NOTES AND RECORDS OF VERTEBRATES FROM ARKANSAS**M.B. Connior¹*, R. Tumilson², H.W. Robison³, C.T. McAllister⁴, and D.A. Neely⁵¹Health and Natural Sciences, South Arkansas Community College, El Dorado, AR 71730, ²Department of Biology, Henderson State University, Arkadelphia, AR 71999, ³9717 Wild Mountain Drive, Sherwood, AR 72120 ⁴Division of Science and Mathematics, Eastern Oklahoma State College, Idabel, OK 74745, ⁵Tennessee Aquarium, Chattanooga, TN**LS 43 FIRST RECORD OF RIBBON WORMS (NEMERTEA: TETRASTEMMATIDAE: PROSTOMA) FROM ARKANSAS.**P.G. Davison¹, H.W. Robison², and C.T. McAllister³.¹Department of Biology, University of North Alabama, Florence, AL 35632; ²9717 Wild Mountain Drive, Sherwood, AR 72120; and ³Science and Mathematics Division, Eastern Oklahoma State College, Idabel, OK 74745.**LS 44 SARCOPHAGEOUS INSECT ASSOCIATIONS AND SUCCESSION ON PIG CARRION DURING THE SUMMER IN CENTRAL ARKANSAS**

Tyler Files, Brianne Baley, and Jess Kelly. Ouachita Baptist University

LS 45 PREVALENCE OF SHIGA TOXIN-PRODUCING *ESCHERICHIA COLI*David F. Gilmore¹, Harneet Kaur², Monica Yarbrough³, and Donald Kennedy³. ¹Biological Sciences, ²Environmental Sciences Program, ³College of Agriculture, Arkansas State University**LS 46 SAMPLING LOCAL FUNGAL DIVERSITY: A METHOD FOR FUNGAL SPECIES IDENTIFICATION USING DNA BARCODING**

A.H. Harrington, A.F. Bigott, B.W. Anderson, M.J. Boone, S.M. Brick, J.F. delSol, C.A. Hotchkiss, R.A. Huddleston, E.H. Kasper, J.J. McGrady, M.L. McKinnie, M.V. Ottenlips, N.E. Skinner, K.C. Spatz, A.J. Steinberg, F. van den Broek, C.N. Wilson, A.M. Wofford and A.M. Willyard. Hendrix University

LS 47 DETERMINATION OF URSOLIC ACID AND BIOACTIVITY IN ILEX DECIDUA

Cynthia Holland, and Martin Campbell. Henderson State University

LS 48 NEW HOST AND LOCATION RECORDS FOR THE BAT BUG *CIMEX ADJUNCTUS* BARBER 1939, WITH A SUMMARY OF PREVIOUS RECORDSJohn Hunt¹, Matthew E. Grilliot², and Christopher G. Sims¹.¹University of Arkansas at Monticello, ²Troy University Montgomery**LS 49 LOCALIZATION STUDY OF BETA-HEXOSAMINIDASE IN THE SOCIAL AMOEBA *DICTYOSTELIUM DISCOIDEUM***

Sanaa Talib Jawed, Azure Yarbrough, and John Bush.

University of Arkansas at Little Rock

LS 50 THE SUGAR AND AMINO ACID CONCENTRATIONS OF EXTRAFLORAL NECTAR IN FIVE COTTON CULTIVARS

Soolaf A. Kathiar, Janet Lanza, and Anindya Ghosh.

University of Arkansas at Little Rock

LS 51 NEW HOST RECORDS FOR MESOCESTOIDES SP. TETRATHYRIDIA (CESTOIDEA: CYCLOPHYLLIDEA) IN AMPHIBIANS (ANURA: BUFONIDAE, RANIDAE) FROM ARKANSAS.C.T. McAllister¹, M.B. Connior², and S.E. Trauth³. ¹Science and Mathematics Division, Eastern Oklahoma State College, Idabel, OK 74745;²Health and Natural Sciences, South Arkansas Community College, El Dorado, AR 71730; and ³Department of Biological Sciences, Arkansas State University, State University, AR 72467.**LS 52 *HAEMOGREGARINA* SP. (APICOMPLEXA: HAEMOGREGARINIDAE), *TELORCHIS ATTENUATA* (DIGENEA: TELORCHIIDAE) AND *NEOECHINORHYNCHUS EMYDIS* (ACANTHOCEPHALA: NEOECHINORHYNCHIDAE) FROM MAP TURTLES (*GRAPTEMYS* SPP.), IN NORTH CENTRAL ARKANSAS.**C.T. McAllister¹*, C.R. Bursey², H.W. Robison³, M.B. Connior⁴, and M.A. Barger⁵.¹Science and Mathematics Division, Eastern Oklahoma State College, Idabel, OK 74745; ²Department of Biology, Pennsylvania State University, Shenango Campus, Sharon, PA 16146; ³9717 Wild Mountain Drive, Sherwood, AR 72120; ⁴Health and Natural Sciences, South Arkansas Community College, El Dorado, AR 71730; and ⁵Department of Natural Sciences, Peru State College, Peru, NE 68421.**LS 53 THE KILLING MECHANISMS OF NOVEL ANTIFUNGAL PEPTIDES**

Gabriela Morris, David McNabb, and Yazan Akkam.

University of Arkansas

LS 54 EFFECTS OF MICROGRAVITY AND RADIATION ON ELASTIC MODULUS OF RAT FEMURS USING 3-POINT BENDINGO. Perkins¹*, A. Walker¹, R. Mehta¹, M. Dobretsov², and P. Chowdhury³.¹Department of Physics and Astronomy, University of Central Arkansas, ²Department of Anesthesiology, University of Arkansas for Medical Sciences, ³Department of Biophysics and Physiology, University of Arkansas for Medical Sciences**LS 55 TOAD (ANURA: BUFONIDAE) LIMB ABNORMALITIES FROM AN AQUATIC SITE IN SCOTT, PULASKI COUNTY, ARKANSAS**

Christopher S. Thigpen, Dan Beard, and Stanley E. Trauth.

Arkansas State University

LS 56 SELECTION OF FATTY ACID DESATURASE 7 (*fad7-1*) SINGLE MUTANT PLANTS IN *ARABIDOPSIS THALIANA* USING SNP-PCR PRIMERKaleb L. Vaughn¹, Carlos A. Avila², and Fiona Goggin².¹Harding University, ²University of Arkansas**LS 57 MOLECULAR CLONING TO IMPROVE MITOCHONDRIAL FISSION AND FUSION ASSAYS**

Olivia Vogel, Kalyn Holloway, and Kari Naylor.

University of Central Arkansas

Arkansas Academy of Science

LS 58 NATURAL HISTORY NOTES AND NEW COUNTY RECORDS FOR OZARKIAN MILLIPEDS (ARTHROPODA: DIPLOPODA) FROM ARKANSAS, KANSAS AND MISSOURI.

N.W. Youngsteadt¹ and C.T. McAllister². ¹2031 S. Meadowview Avenue, Springfield, MO 65804; and ²Science and Mathematics Division, Eastern Oklahoma State College, Idabel, OK 74745.

CHEMISTRY & BIOCHEMISTRY POSTERS**CBC 15 EXPLORING COORDINATION CHEMISTRY OF TRIS(PYRAZOL-1-YL)METHANE**

Morgan Coleman, and Ganna Lyubartseva. Southern Arkansas University

CBC 16 CRITICAL DISSOLVED OXYGEN LEVELS IN TRIBUTARIES OF THE BUFFALO NATIONAL RIVER

John Kincaid¹, Faron Usrey², and Sherri Townsend¹.

¹North Arkansas College, ²National Park Service

CBC 17 ISOTHERMAL TITRATION CALORIMETRY FOR QUANTIFYING LACTOPEROXIDASE ACTIVITY IN MILK

William Tolleson¹, and Clifton Lewis, Jr.² ¹National Center for Toxicological Research, ²Watson Chapel School District

CBC 18 IRON-CARBON RELATIONSHIP BETWEEN BOND LENGTH AND BOND VALENCE

Larkin McDaniel, and Franklin D. Hardcastle. Arkansas Tech University

CBC 19 NEUTRALIZATION AND pH EFFECT OF MILK ON ASPIRIN SOLUTIONS

Jordan Miller, Nikisha West, Fontaine Taylor, and Insu 'Frank' Hahn. Department of Chemistry, Division of Natural and Physical Sciences, Philander Smith College, Little Rock, AR

CBC 20 WATER QUALITY STUDY AT LAKE COLUMBIA, AR

Kara O'Neal, and Casey O'Hara

CBC 21 EFFECTS OF MICROGRAVITY AND RADIATION ON ELASTIC MODULUS OF RAT FEMURS USING 3-POINT BENDING

O. Perkins¹, A. Walker¹, R. Mehta¹, M. Dobretsov², and P. Chowdhury², ¹University of Central Arkansas, ²University of Arkansas for Medical Sciences

CBC 22 MOLECULAR MODELING STUDIES OF PHYLOGENETICALLY SIGNIFICANT CAROTENOIDS OF OXYGENIC PHOTOTROPHS

Ryan Reyes, and M. Jeffery Taylor. University of Arkansas-Monticello

CBC 23 SPICES: TESTING THEIR ANTIMICROBIAL PROPERTIES AND SYNERGISM WITH PENICILLIN ON ESCHERICHIA COLI

Gregory Tyler Rives. Southern Arkansas University

CBC 24 SUPERAMPHIPHOBIC ALUMINUM ALLOY SURFACES

Zubayda S Saifaldeen, Khedir R Khedir, and Tansel Karabacak, Department of Applied Science, UALR

CBC 25 BIOCHEMISTRY OF CHROMIUM

Shelby Sorrells, Silas Brown, and Edmond Wilson. Harding University

CBC 26 MEASURING PAIN WITHDRAWAL THRESHOLD USING A NOVEL DEVICE OPERATING IN "PSEUDO-CONTINUOUS" MODE

Azida Walker¹, Nick Martinez¹, Skipper Thurman¹, Shelby Burns¹, and Maxim Dobretsov². ¹University of Central Arkansas; ²University of Arkansas for Medical Sciences

CBC 27 FRESHMAN FIND PHAGE!

Jessica Ashcraft, Ruth Plymale, and Nathan Reyna. Ouachita Baptist University

PHYSICS AND ENGINEERING POSTERS**P&E 22 A STUDY OF THE RELATION BETWEEN THE SPIRAL ARM PITCH ANGLE AND THE KINETIC ENERGY OF RANDOM MOTIONS OF THE HOST SPIRAL GALAXIES**

Ismaeel Al-Baidhany¹, Marc Seigar¹, Patrick Treuthardt¹, Amber Sierra¹, Ben Davis², Daniel Kennifick², Julia Kennefick², and Claud Lacy². ¹University of Arkansas at Little Rock, ²University of Arkansas at Fayetteville

P&E 23 A STUDY OF THE DISCREPANCY BETWEEN DYNAMICAL MASSES AND STELLAR MASSES IN SPIRAL GALAXIES

Ismaeel Al-Baidhany¹, Marc Seigar¹, Patrick Treuthardt¹, Amber Sierra¹, Ben Davis², Daniel Kennifick², Julia Kennefick², and Claud Lacy². ¹University of Arkansas at Little Rock, ²University of Arkansas at Fayetteville

P&E 24 STRUCTURAL AND OPTICAL PROPERTIES OF ALUMINUM NANORODS FABRICATED BY GLANCING ANGLE DEPOSITION (GLAD)

Rosure B. Abdulrahman, Mehmet F. Cansizoglu, and Tansel Karabacak. University of Arkansas at Little Rock

P&E 2 RUTHERFORD SCATTERING – KINEMATICS AND ANGULAR DEPENDENCE

Fawzi Alzahrani, Cruz Segura, Dawson Long, Forrest McDougal, Lawrence Benzmillier, R. Mehta, and A. Walker. University of Central Arkansas

P&E 26 SYNCHRONIZATION LIMITS OF CHAOTIC CIRCUITS

Christopher M. Church, and Stephen R. Addison. University of Central Arkansas

P&E 27 SUPERHET CONVERTER FOR VLF 60kHz WWVB RADIO SIGNAL

Kody Coleman, Juan D. Serna. University of Arkansas at Monticello

P&E 28 A FRAMEWORK FOR MODELING USABILITY OF TEXT-BASED CAPTCHA

Jasmine DeHart, Jalen Mayfield, and Samar Swaid. Philander Smith College

P&E 29 STABLE FUZZY LOGIC CONTROL FOR NONLINEAR SIMPLE CHAOTIC MAPS

Christopher Gillison, and Juan D. Serna. University of Arkansas at Monticello

P&E 30 GEOMETRICAL VALIDATION OF LINEAR AND NONLINEAR DIOPHANTINE EQUATIONS

Kyra Jerry, and Juan D. Serna. University of Arkansas at Monticello

P&E 31 INVESTIGATION AND COMPARISON OF TWO BASIC AUDIO AMPLIFIER CIRCUITS

Michael Kelley, and Dr. Charles Wu. Harding University

P&E 32 TOTAL EXCITATION SCATTERING CROSS SECTION FOR POSITRONS SCATTERED BY MOLECULAR NITROGEN IN THE ENERGY RANGE (3 – 10 keV)

H.L. Mansour¹ and W.A. Jabbar². ¹Al – Mustansiriyah University, ²University of Arkansas at Little Rock

Meeting Report

P&E 33 DETERMINATION OF THE TOTAL EXCITATION SCATTERING CROSS SECTIONS OF MOLECULAR NITROGEN FOR POSITRONS AT ENERGIES UP TO (10 keV)

H.L. Mansour¹ and W.A. Jabbar². ¹Al-Mustansiriyah University,
²University of Arkansas at Little Rock

P&E 34 FABRICATION OF CDS NANORODS AND NANOPARTICLES WITH PANI FOR DYE-SENSITIZED SOLAR CELLS

Muatez Zamil Mohammed, and Tar-Pin Chen.
University of Arkansas at Little Rock

P&E 35 APPLYING PROBABILISTIC MATCHING AND POST RESOLUTION CLERICAL REVIEW TECHNIQUES TO IMPROVE ENTITY RESOLUTION RESULTS

Daniel Pullen, Pei Wang, and John Talburt.
University of Arkansas at Little Rock

P&E 36 GAMMA GAMMA COINCIDENCE

Lucas Ratz, Doug Roisen, Jeremy Jacobs, Tanner Feeler, Azida Walker, and Rahul Mehta. Department of Physics and Astronomy, University of Central Arkansas

P&E 37 X-RAY FLUORESCENCE AND MOSELEY'S LAWS OF NUCLEAR RADIATION SPECTRA

T. Ryan Rogers, Hunter P. Ward, Nicholas L. Frederickson, Anthony D. Mitchel, Azida Walker, and Rahul Mehta. University of Central Arkansas

P&E 38 CLASSIFICATION OF PARALLEL VORTEX-BODY INTERACTION

Matthew Strasser, and R. Panneer Selvam. University of Arkansas

P&E 39 NANOSAT SPECTROMETER

Edmond Wilson, Mauris Orona, and Andrew Couch. Harding University

P&E 40 ENERGY LOSS OF ALPHA PARTICLES IN COPPER FOILS

Xavier Redmon, Gerard Munyazikwiye, Ashley Cotnam, Azida Walker, and Rahul Mehta. University of Central Arkansas